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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|-----------------------|------------------|
| 10/666,216 | 09/18/2003 | Hideo Sano | 3796.P0042US | 8302 |
| 23474 | 7590 | 05/30/2007 | EXAMINER | |
| FLYNN THIEL BOUTELL & TANIS, P.C. | | | MORILLO, JANELL COMBS | |
| 2026 RAMBLING ROAD | | | ART UNIT | PAPER NUMBER |
| KALAMAZOO, MI 49008-1631 | | | 1742 | |
| MAIL DATE | | DELIVERY MODE | | |
| 05/30/2007 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|-----------------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/666,216 | SANO ET AL. |
| | Examiner Janelle Combs-Morillo | Art Unit 1742 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 4/27/2007.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,2 and 4-6 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2 and 4-6 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 27, 2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'353 in view of JP2002-317255 (JP'255) or JP2001-205329A (JP'329).

JP'353 teaches a process of extruding an aluminum alloy, with alloying ranges of Si, Mg, Cu, and Mn that substantially overlaps the alloy composition in instant claims 1 and 4 as well as equations 1-4 (see Table below, JP'353 at abstract). JP'353 obtains an extrusion fiber texture and teaches that the existence of transition metals Mn, Cr, Zr, etc. homogeneously deposited in the extrusion ingot inhibit recrystallization, and therefore provide an unrecrystallized fiber texture (see translation, p 3). JP'353 mentions in the examples that the recrystallized layer of the extruded material is 0.1% of the thickness (translation, p 7), which substantially overlaps the

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presently claimed area% of fibrous structure. JP'353 further teaches homogenizing prior to extrusion at temperatures near 500 °C and cooling at a rate \geq 200°C/hr down to 200 °C or less, extruding at 500 °C and a ratio of \geq 10 (translation p 1), and solution heat treating after extruding by heating to 495-510°C, and artificially aging at 160-180°C for 2-8 hr (translation p 5) to obtain a T6 temper (translation p 6).

| | Si | | Mg | | Cu | | equation 1 | | equation 2 | | equation 3 | | equation 4 | |
|--------|-----|-----|-----|-----|-----|-----|------------|-----|------------|------|------------|-----|------------|-----|
| | min | max | min | max | min | max | min | max | min | max | min | max | min | max |
| JP'353 | 0.1 | 1.5 | 0.2 | 2 | 1.5 | 6 | 1.8 | 9.5 | 0.17 | 2.55 | 0.3 | 3.5 | 0.75 | 3.6 |

JP'353 does not teach the apparatus limitations of said method claims. However, the prior art of JP'225 (drawn extrusion of similar 6xxx alloys) teaches substantially similar extrusion apparatus parameters, including a thickness (T) of the product 50-100mm [0018-0019], and a bearing length of a solid die $L \approx T$ (see diagrams).

Alternatively, JP'329 (also drawn extrusion of similar 6xxx alloys) teaches substantially similar extrusion apparatus parameters, including a thickness (T) of the product 1.4-2.5mm (Table 2), and a bearing length of a solid die $L = H_b = 1.5-4.0$ (see [0005], Table 1) (see diagrams).

It would have been obvious to one of ordinary skill in the art to use the apparatus taught by JP'225 or JP'329 when extruding the alloys taught by JP'353 because JP'225 teaches a product with no cracking and excellent strength can be obtained (abstract), or because JP'329 teaches a product without defects and complicated shape can be obtained (abstract).

4. Claims 2, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'353 in view of JP2002-317255 (JP'255).

JP'353 and JP'255 are discussed in paragraphs above. JP'353 does not teach the apparatus limitations of said method claims. However, the prior art of JP'225 teaches a flow guide is used during said extrusion, and is placed at the front of the solid die (#23, see Fig. 2).

JP'225 also teaches an inner circumferential surface is separated from an outer circumferential surface with the bearing of the solid die at a distance of $A \geq 20$ mm (abstract, see also Figures), which is close to the instant amended limitation of A 9-15mm. JP'225 teaches the thickness of the flow guide 23 is $B=5\text{-}25\%$ of the outer diameter of the flow guide (which is substantially equal to the thickness of the billet, see Fig. 2).

Concerning claim 6, though JP'353 mentions the extrusion of a round bar (translation p 6), and does not specify a hollow section, because JP'353 teaches said alloy has good extrusion properties, it held to be within the disclosure of JP'353 to extrude said Al-Cu-Mg-Si-Mn alloy into a variety of configurations including hollow and solid sections.

Concerning claim 5, JP'353 teaches substantially the same process steps of homogenizing, cooling, extruding, solution heating, and aging (see above discussion). Though JP'353 does not specify the cooling rate after solution heating, JP'353 does mention a T6 peak-strength temper is formed, wherein a fast quenching step after solution heating must take place to provide dispersoid elements in a super-saturated state prior to aging. Therefore, it is held to be within the disclosure of JP'353 to fast quench at rates $\geq 10\text{C/s}$, substantially as presently claimed.

It would have been obvious to one of ordinary skill in the art to use the apparatus taught by JP'225 when extruding the alloys taught by JP'353 because JP'225 teaches a product with no cracking and excellent strength can be obtained (abstract).

Response to Amendment/Arguments

5. In the response filed on April 27, 2007 applicant amended claim 2. Claims 1, 2, 4-6 are currently pending.
6. Applicant's argument that the present invention is allowable over the prior art of record because the prior art does not teach or suggest the presently amended feature of distance between inner circumferential surface to outer circumferential surface has not been found persuasive. The apparatus taught by the prior art is capable of performing a functionally equivalent process. More particularly, the prior art teaches a structure that functions in a substantially identical way and in a approximate degree (see MPEP 2183).

Conclusion

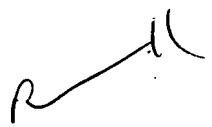
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JCM
May 24, 2007


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